THE SECRETARY OF TRANSPORTATION
WASHINGTON, DC 20590

September 13, 2018

The Honorable Bill Shuster
Chairman, Committee on Transportation and Infrastructure
U.S. House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

Enclosed is the Nationwide Integrated Pipeline Safety Regulatory Database Feasibility Study, as required by Section 11 of the Protecting our Infrastructure of Pipelines and Enhancing Safety Act of 2016, Public Law No. 114-183.

The Act requires the Secretary of Transportation to submit a report on the feasibility of establishing a national integrated pipeline safety regulatory inspection database to improve communication and collaboration between the Pipeline and Hazardous Materials Safety Administration and State pipeline regulators.

A similar letter has been sent to the Ranking Member of the House Committee on Transportation and Infrastructure; to the Chairman and Ranking Member of the House Committee on Energy and Commerce; and to the Chairman and Ranking Member of the Senate Committee on Commerce, Science, and Transportation.

Sincerely,

Elaine L. Chao

Enclosure

THE SECRETARY OF TRANSPORTATION
WASHINGTON, DC 20590

September 13, 2018

The Honorable Peter A. DeFazio
Ranking Member, Committee on Transportation and Infrastructure
U.S. House of Representatives
Washington, DC 20515

Dear Congressman DeFazio:

Enclosed is the Nationwide Integrated Pipeline Safety Regulatory Database Feasibility Study as required by Section 11 of the Protecting our Infrastructure of Pipelines and Enhancing Safety Act of 2016, Public Law No. 114-183.

The Act requires the Secretary of Transportation to submit a report on the feasibility of establishing a national integrated pipeline safety regulatory inspection database to improve communication and collaboration between the Pipeline and Hazardous Materials Safety Administration and State pipeline regulators.

A similar letter has been sent to the Chairman of the House Committee on Transportation and Infrastructure; to the Chairman and Ranking Member of the House Committee on Energy and Commerce; and to the Chairman and Ranking Member of the Senate Committee on Commerce, Science, and Transportation.

Sincerely,

Elaine L. Chao

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THE SECRETARY OF TRANSPORTATION
WASHINGTON, DC 20590

September 13, 2018

The Honorable Greg Walden
Chairman, Committee on Energy and Commerce
U.S. House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

Enclosed is the Nationwide Integrated Pipeline Safety Regulatory Database Feasibility Study as required by Section 11 of the Protecting our Infrastructure of Pipelines and Enhancing Safety Act of 2016, Public Law No. 114-183.

The Act requires the Secretary of Transportation to submit a report on the feasibility of establishing a national integrated pipeline safety regulatory inspection database to improve communication and collaboration between the Pipeline and Hazardous Materials Safety Administration and State pipeline regulators.

A similar letter has been sent to the Ranking Member of the House Committee on Energy and Commerce; to the Chairman and Ranking Member of the House Committee on Transportation and Infrastructure; and to the Chairman and Ranking Member of the Senate Committee on Commerce, Science, and Transportation.

Sincerely,

Elaine L. Chao

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THE SECRETARY OF TRANSPORTATION
WASHINGTON, DC 20590

September 13, 2018

The Honorable Frank Pallone
Ranking Member, Committee on Energy and Commerce
U.S. House of Representatives
Washington, DC 20515

Dear Congressman Pallone:

Enclosed is the Nationwide Integrated Pipeline Safety Regulatory Database Feasibility Study as required by Section 11 of the Protecting our Infrastructure of Pipelines and Enhancing Safety Act of 2016, Public Law No. 114-183.

The Act requires the Secretary of Transportation to submit a report on the feasibility of establishing a national integrated pipeline safety regulatory inspection database to improve communication and collaboration between the Pipeline and Hazardous Materials Safety Administration and State pipeline regulators.

A similar letter has been sent to the Chairman of the House Committee on Energy and Commerce; to the Chairman and Ranking Member of the House Committee on Transportation and Infrastructure; and to the Chairman and Ranking Member of the Senate Committee on Commerce, Science, and Transportation.

Sincerely,

Elaine L. Chao

Enclosure

THE SECRETARY OF TRANSPORTATION
WASHINGTON, DC 20590

September 13, 2018

The Honorable John Thune
Chairman, Committee on Commerce,
Science, and Transportation
United States Senate
Washington, DC 20510

Dear Mr. Chairman:

Enclosed is the Nationwide Integrated Pipeline Safety Regulatory Database Feasibility Study as required by Section 11 of the Protecting our Infrastructure of Pipelines and Enhancing Safety Act of 2016, Public Law No. 114-183.

The Act requires the Secretary of Transportation to submit a report on the feasibility of establishing a national integrated pipeline safety regulatory inspection database to improve communication and collaboration between the Pipeline and Hazardous Materials Safety Administration and State pipeline regulators.

A similar letter has been sent to the Ranking Member of the Senate Committee on Commerce, Science, and Transportation; to the Chairman and Ranking Member of the House Committee on Transportation and Infrastructure; and to the Chairman and Ranking Member of the House Committee on Energy and Commerce.

Sincerely,

Elaine L. Chao

Enclosure

THE SECRETARY OF TRANSPORTATION
WASHINGTON, DC 20590

September 13, 2018

The Honorable Bill Nelson
Ranking Member, Committee on Commerce,
Science, and Transportation
United States Senate
Washington, DC 20510

Dear Senator Nelson:

Enclosed is the Nationwide Integrated Pipeline Safety Regulatory Database Feasibility Study as required by Section 11 of the Protecting our Infrastructure of Pipelines and Enhancing Safety Act of 2016, Public Law No. 114-183.

The Act requires the Secretary of Transportation to submit a report on the feasibility of establishing a national integrated pipeline safety regulatory inspection database to improve communication and collaboration between the Pipeline and Hazardous Materials Safety Administration and State pipeline regulators.

A similar letter has been sent to the Chairman of the Senate Committee on Commerce, Science, and Transportation; to the Chairman and Ranking Member of the House Committee on Transportation and Infrastructure; and to the Chairman and Ranking Member of the House Committee on Energy and Commerce.

Sincerely,

Elaine L. Chao

Enclosure

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**Contents**

## A. Executive Summary

Section 11 of the PIPES Act of 2016 requires the Secretary of Transportation to submit a report on the feasibility of establishing a national integrated pipeline safety regulatory inspection database to improve communication and collaboration between the Pipeline and Hazardous Materials Safety Administration (PHMSA) and State pipeline regulators.

The primary safety benefit of the national integrated database would be providing the public with a complete picture of the Department of Transportation's (DOT) pipeline safety program. PHMSA's website displays federal inspection and enforcement data by operator. State pipeline regulator inspection and enforcement data on the PHMSA website is aggregated annually and does not include operator data. Approximately 80 percent of the nation's pipeline miles are inspected by State pipeline regulators, but the public has no visibility of the operators inspected. By capturing and displaying operator-level State pipeline regulator inspection and enforcement data, PHMSA could incentivize pipeline operators regulated by States to improve safety and avoid enforcement actions.

Additionally, operator-level enforcement data from State regulators would allow PHMSA to analyze the most frequently violated aspects of pipeline safety regulations for all infrastructure under PHMSA's safety authority. Another potential safety benefit of a national integrated database would be providing regulators, both PHMSA and State, with knowledge of previous inspection and enforcement actions for a pipeline operator, regardless of the regulator conducting the inspection.

PHMSA worked with 11 State pipeline regulators during the preparation of this report. The regulators were selected to ensure a wide range of technical sophistication. We assessed data gaps by comparing State pipeline regulator inspection and enforcement data to the PHMSA data displayed on the PHMSA website. Significant gaps in inspection and enforcement data were noted among just these 11 State pipeline regulators. If the Department decides to proceed with the collection of operator-level data from our State pipeline regulators, a multi-year process would be used to ensure State pipeline regulators have adequate time to modify their processes and data systems.

PHMSA would require additional resources in three major categories in order to establish a national integrated pipeline safety regulatory inspection database: information technology development, information technology project management, and data quality assurance. The national database would result in a massive increase in PHMSA's quality assurance workload. In calendar year 2016, State pipeline regulators accrued over six times more inspection days than PHMSA. Also in 2016, State pipeline regulators initiated over 16 times more enforcement cases than PHMSA.

It is feasible for PHMSA to create a database of operator-level inspection and enforcement data. However, the creation of this national database would require several years to implement and significant new resources for State pipeline regulators and PHMSA.

## B. Background

Section 11 of the PIPES Act of 2016 requires the Secretary of Transportation to submit a report on the feasibility of establishing a national integrated pipeline safety regulatory inspection database to improve communication and collaboration between the Pipeline and Hazardous Materials Safety Administration (PHMSA) and State pipeline regulators. The report must include:

1. A description of any efforts underway to test a secure information-sharing system to improve communication and collaboration between PHMSA and State pipeline regulators;
2. A description of any progress in establishing common standards for maintaining, collecting, and presenting pipeline safety regulatory inspection data, and a methodology for sharing the data;
3. A description of any inadequacies or gaps in State and Federal inspection, enforcement, geospatial, or other pipeline safety regulatory inspection data;
4. A description of the potential safety benefits of a national integrated pipeline safety regulatory inspection database; and
5. Recommendations, including those of stakeholders for how to implement a secure information-sharing system that protects proprietary and security sensitive information and data to improve communication and collaboration between PHMSA and State pipeline regulators.

PHMSA is responsible for the inspection and enforcement of safety regulations for interstate pipeline systems. Pipeline safety statutes at 49 U.S.C. §§ 60105- 60106 permit State agencies to assume responsibility for the inspection and enforcement of safety regulations for intrastate pipeline systems. State pipeline regulators are required to adopt the minimum pipeline safety regulations before assuming responsibility for intrastate pipeline systems. PHMSA currently partners with the District of Columbia, Puerto Rico, and all States, except Alaska and Hawaii, for the regulation of intrastate pipeline systems.

The PHMSA website presents inspection data for both PHMSA and State pipeline regulators. For PHMSA inspections, the website provides specific data about each inspection, including the operator inspected and whether PHMSA issued an enforcement action after the inspection. Data about each PHMSA enforcement action is also provided on the PHMSA website. For each State pipeline regulator, PHMSA displays annual, aggregated inspection and enforcement data. More granular inspection and enforcement data from State pipeline regulators would provide the public with a complete picture of the Secretary's pipeline safety program.

After the explosion of a Pacific Gas and Electric Company pipeline in San Bruno, California, in September 2010, many stakeholders checked the PHMSA website and found neither inspection nor enforcement data for Pacific Gas and Electric Company. The Secretary's program included regulatory inspections of Pacific Gas and Electric conducted by the California Public Service Commission. However, since the State data is aggregated, PHMSA's website did not display the California Public Service Commission's regulatory inspections of Pacific Gas and Electric

Company. By capturing and displaying more granular State data, PHMSA could prevent misunderstandings about the Secretary's efforts to ensure the safety of the nation's pipeline systems in the future.

### C. Secure Information Sharing System

PHMSA has implemented several secure information sharing systems to collaborate with other federal safety agencies. For many years, PHMSA has collected aggregated, annual regulatory inspection and enforcement data from State pipeline regulators. During calendar year 2017, PHMSA developed a new application to help State pipeline regulators estimate the personnel resources required to effectively implement the Secretary's pipeline safety program. PHMSA's experience and expertise with these secure information sharing systems could readily be applied to the collection and display of operator-level pipeline safety inspection and enforcement data for both PHMSA and State pipeline regulators.

### D. Common Data Standards

As part of this study, PHMSA evaluated the systems used by 11 State pipeline regulators to collect, store, and report inspection and enforcement data. PHMSA selected State pipeline regulators with a wide range of data system sophistication for the evaluations to ensure potential solutions would meet the needs of all State pipeline regulators partnering with PHMSA. More details are included in the "Technical Solutions" section of this report.

Based on the evaluations and PHMSA's current and projected regulatory inspection data, it would be feasible to collect these data elements for each State pipeline regulator inspection:

Inspection Unique Identifier
Operator ID(s)
Operator Name(s)
Unit ID(s)
Unit Name(s)
Unit Pipeline Type(s)
Type of Inspection
Start Date
End Date
Away From Office (AFO) Days
Non-AFO Days
Enforcement Unique Identifier(s)

While the PHMSA website shows granular federal inspection data, we also use categories to describe the type of regulatory inspection. Each federal inspection is included in one of these categories:

Site-Specific Field Inspection
System-Wide Program Inspection
Targeted Inspection/Investigation

Each type of State regulatory inspection would also be placed in one of the categories.

Based on the evaluations and PHMSA's current and projected enforcement data, it would be feasible to collect these data elements for each State pipeline regulator enforcement action:

Enforcement Unique Identifier
Operator ID
Operator Name
Type of Enforcement
Date Opened
Date Closed
Item ID(s)

Categories of enforcement actions for PHMSA are:

Notice of Probable Violation
Notice of Amendment
Corrective Action Order
Safety Order
Warning Letter

"Type of enforcement" for each State pipeline regulator enforcement action would be assigned to one of the categories or, if necessary, additional categories would be created to accommodate all types of enforcement actions issued by State pipeline regulators.

For each item within a State pipeline regulator enforcement action, it would be feasible to collect these data elements:

Enforcement Unique Identifier
Item ID
Regulation Cited
Unit ID(s)
Proposed Civil Penalty
Assessed Civil Penalty
Collected Civil Penalty
Egregious Action (Y/N)
Causal to Incident/Accident (Y/N)
Increased Severity of Incident/Accident (Y/N)
Repeat Violation Enforcement Unique Identifier(s)
Repeat Violation Item ID(s)

The Enforcement Unique Identifiers serve as the link between the regulatory inspection and the enforcement action. Examples of egregious violations include manipulation of records, reconfiguration of equipment, and efforts to evade compliance or conceal non-compliance. An item is considered a repeat violation if during the five years prior to the date the enforcement action is opened, an item alleges the same basic conduct that was cited as a finding of violation in a previous enforcement action.

For each item from a PHMSA enforcement action, the PHMSA website displays both the federal regulation cited and a short description of the regulation. For items from State pipeline regulator

enforcement actions, the regulations cited will be a State regulation. Each State regulation would be matched to the appropriate short description or, if necessary, additional short descriptions would be created to accommodate all State regulations cited.

### E. Gaps in State Regulatory Inspection Data

Regarding gaps in State data, PHMSA evaluated the processes and data systems of 11 State pipeline regulators during the preparation of this report. We assessed data gaps by comparing State pipeline regulator inspection and enforcement data to the current and projected PHMSA data. Significant gaps in inspection and enforcement data were noted among just these 11 State pipeline regulators. PHMSA expects comparable levels of data gaps among the remaining State pipeline regulators.

Appendix 1 of this report summarizes data gaps identified during the evaluation of State pipeline regulator processes and data systems. Generally, State pipeline regulators have implemented processes and built data systems capable of providing PHMSA with the aggregated annual data required by the PHMSA program evaluation. Since many of the data elements listed in the "Common Data Standards" section of this report are not part of the current program evaluation, most States are not collecting the data. Individual State evaluation results are contained in Appendices 2 through 12 of this report.

PHMSA encourages States to share information through our pipeline safety grant program. PHMSA evaluates State pipeline regulator grant performance through an annual program evaluation. PHMSA communicates expectations to State pipeline regulators annually by publishing guidelines. State pipeline regulators that do not meet the guidelines receive a less than perfect program evaluation score that results in a decrease in the PHMSA grant funding. Providing operator-level inspection and enforcement data is not required by the pipeline safety statutes for the grant program, therefore, a State can be certified to have a pipeline safety program without providing data. The operator-level data would be available in the State files for PHMSA's review, but the statute does not require State pipeline regulators to submit this level of data to PHMSA.

If PHMSA were to implement a national database, the first step would be adding the collection and submittal of operator-level inspection and enforcement data to the PHMSA guidelines for State pipeline regulators. If PHMSA were to add operator-level data to the guidelines, PHMSA expects State pipeline regulators would eventually modify their processes and data systems to generate the requested data. However, these process and data system modifications would take several years to complete. When PHMSA implements changes to the guidelines for State pipeline regulators, the new aspects of the guidelines are typically not tied to the evaluation score for several years. After State pipeline regulators have had sufficient time to adapt to the new guidelines, PHMSA's evaluation of these aspects affects the level of funding provided by PHMSA to the State pipeline regulator. If PHMSA implements the collection of operator-level data from our State pipeline regulators, the typical multi-year process would be used to ensure State pipeline regulators have adequate time to modify their processes and data systems before the lack of granular data could reduce funding from PHMSA.

## F. Potential Safety Benefits of a National Integrated Database

The primary safety benefit of the national integrated database would be providing the public with a complete picture of the DOT pipeline safety program. This complete picture could prevent misunderstandings about the extent of effort being applied to ensure the safety of the nation's pipeline systems. Eighty percent of the infrastructure under PHMSA's safety authority is regulated by State pipeline regulators through certification with PHMSA. By collecting more granular inspection and enforcement data from certified State pipeline regulators, the PHMSA website could display operator-level inspection and enforcement data for all infrastructure under PHMSA's authority. Exposure of this data could incentivize pipeline operators regulated by States to improve safety and avoid enforcement actions.

Additionally, operator-level enforcement data would allow PHMSA to analyze the most frequently violated aspects of pipeline safety regulations for all infrastructure under PHMSA's authority. This analysis could identify areas where PHMSA and States could enhance regulations and outreach. Also, these frequently violated areas could be evaluated to determine if they are simply readily apparent to inspectors or represent an increased risk to safety.

Another potential safety benefit of a national integrated database would be providing regulators, both PHMSA and State, with knowledge of previous inspection and enforcement actions for a pipeline operator, regardless of the regulator conducting the inspection. PHMSA is already working on several projects to improve collaboration and communication among PHMSA and State pipeline regulators.

## G. Recommendations from Stakeholders

During the evaluation of the processes and data systems used by 11 of PHMSA's current certified State pipeline regulators, the need for flexibility became readily apparent. State pipeline regulator inspection processes, enforcement processes, and data systems are tailored primarily to the unique needs of the State agency. PHMSA's data needs are generally a secondary consideration. To combine PHMSA and State pipeline regulator inspection and enforcement data in a common database, the technical solutions would have to be customizable to the unique processes and systems of each State pipeline regulator.

Some State pipeline regulators emphasized the sensitivity of enforcement data and would expect significant delays between issuing an enforcement action and sending PHMSA enforcement data. Generally, PHMSA posts operator-level enforcement data to our public website within 30 days of issuing an enforcement action. As the enforcement case proceed to a final decision, which could take several years, PHMSA updates the website enforcement data. Some State pipeline regulators are prohibited from sharing any information about enforcement cases until the State agency publishes a final decision.

PHMSA presented preliminary results of this feasibility study at each regional meeting of our State pipeline regulators during fiscal year 2017. There was general agreement that a centralized database of operator-level inspection and enforcement data is feasible. However, some State pipeline regulators asked if PHMSA was willing to provide additional grant funding to enable

State pipeline regulators to generate additional data and submit it to a centralized database. If PHMSA does not provide additional funding, State pipeline regulators would need to decrease inspection and enforcement efforts and divert resources to data generation and manipulation.

## H. Technical Solutions

During the evaluations of 11 State pipeline regulator processes and data systems, PHMSA identified numerous potential technical solutions. These solutions include a wide array of potential options for bringing State pipeline regulator operator-level inspection and enforcement data into a common database. To consolidate operator-level inspection and enforcement data from all State pipeline regulators, each of the potential technical solutions described below would likely be required.

Potential technical solutions fall into two general categories: data bridge and application development. The division between these two can be defined by the differences in technical system scope and goals. Data bridge solutions would focus on transferring data from State pipeline regulator systems to PHMSA with minimal changes to State business processes and technologies. Application development solutions focus on creating or modifying existing PHMSA software to accept operator-level inspection and enforcement data from State pipeline regulators.

### Category 1: Data Bridge Solutions

These potential solutions focus on acquiring data from State pipeline regulators with minimal application development and business process changes. The best solution for a given State pipeline regulator would depend on numerous factors outside the scope of this feasibility study. A detailed analysis of each State pipeline regulator's processes and data systems would be required to identify the optimal data bridge solution.

- Direct Database Connection - Under this solution, direct electronic communication would be established at a specified frequency by linking database systems together, either through database system protocols or through an intermediary tool.

- Web-Based Data Upload Tool - A custom-built web application could be created and maintained by PHMSA to facilitate the manual upload of data files. This solution would be distinct from a full-fledged application built for inspections as this application would process raw data from spreadsheets, xml files, or other file types for direct submission to PHMSA systems.

- Application Programming Interface (API) Clients - For State pipeline regulators with an API, PHMSA could deploy applications to retrieve data directly across the API.

- Web Service - PHMSA could deploy a set of web services to enable the submission of State pipeline regulator data to PHMSA through a system-to-system interface.

- Secure File Transport Protocol (SFTP) - Network protocols providing file access, file transfer, and file management over a secure data stream.

- Optical Character Recognition (OCR) - Converts handwritten or typed text into a digital representation that can be used by electronic systems. PHMSA currently employs OCR technology and the current system could be expanded to process operator-level inspection and enforcement information not currently stored in databases.

**Category 2: Application Development Solutions**
These potential solutions would be used in situations where the ability to aggregate digitized data is presently lacking and not readily accomplished. These options involve building applications to support State pipeline regulator inspection and enforcement data entry.

- Unified Application - PHMSA could architect and build a shared system utilizing a unified application approach for operator-level inspection and enforcement data entry. This approach would likely utilize existing PHMSA common operating environments and databases to provide a single point of data entry for multiple states.

- State-Specific Application - Development of an inspection and enforcement application could be specific to an individual State pipeline regulator. Developing an application for a single State pipeline regulator would require an extensive understanding of their business process, regulations, and data requirements. These applications would contain a core code base to collect and report operator-level inspection and enforcement data and tailored code for each State pipeline regulator.

## I. Conclusions

It is feasible for PHMSA to create a national database of operator-level inspection and enforcement data. However, the creation of this national database would require several years to implement and significant new resources for State pipeline regulators and PHMSA.

State pipeline regulators would require several years and additional PHMSA grant funding to modify their processes and data systems to collect the operator-level data described in this feasibility study. Depending on the optimal technical solution for a State pipeline regulator, additional PHMSA grant funding may be required to facilitate the transfer of data to PHMSA.

PHMSA would require additional resources in three major categories: information technology development, information technology project management, and data quality assurance. Consolidating operator-level inspection and enforcement data from all State pipeline regulators would require a wide array of technical solutions. PHMSA would require additional information technology contract funding and project management resources to adequately supervise the additional contract effort.

From PHMSA's perspective, the national database would result in a massive increase in PHMSA's quality assurance workload. In calendar year 2016, PHMSA region staff accrued 6,611 days inspecting pipeline operators. State pipeline regulators accrued 39,272 days inspecting – nearly six times more than PHMSA. From an enforcement perspective, PHMSA initiated 164 federal enforcement cases in calendar year 2016. During the same time period, four different State pipeline regulators initiated more cases than PHMSA. Collectively, the State pipeline regulators initiated 2,637 enforcement cases - over 16 times more than PHMSA. Currently, PHMSA implements quality assurance checks to verify the completeness and accuracy of each data element for each federal inspection and enforcement record. PHMSA would need additional quality assurance resources to verify each data element for the significantly higher number of State pipeline regulator inspection and enforcement records.

## Appendix 1 Summary of Data Gaps

The foundation of the feasibility study, from a data perspective, focused on a key set of pipeline safety data elements and data challenges found in relation to that set. The following was the minimum set deemed necessary by PHMSA subject-matter experts (SMEs) for creating the data commonality required to implement a nationwide database. PHMSA SMEs have continued to refine the minimum data set – see section D of this report.

| INSPECTION DATA ELEMENT | DESCRIPTION |
|---|---|
| **OPERATOR IDENTIFIER (ID)** | A unique ID assigned to each pipeline operator |
| **OPERATOR NAME** | Name assigned to each pipeline operator |
| **UNIT IDENTIFIER (ID)** | A unique ID assigned to each pipeline unit |
| **UNIT NAME** | Name assigned to each pipeline unit |
| **SYSTEM TYPE** | Type of system for Inspection (Gas Transmission or Hazardous Liquid for feasibility study) |
| **UNIQUE IDENTIFIER (ID)** | A unique ID assigned to each inspection |
| **INSPECTION TYPE** | Type of inspection conducted on a unit. These can be state-specific, and therefore predicates mapping to PHMSA equivalent for data commonality purposes |
| **START DATE** | The day an inspection was initiated |
| **END DATE** | The day an inspection was completed |
| **AWAY FROM OFFICE (AFO) PERSON DAYS** | The number of days an inspector is at the operator site completing a field inspection |
| **OFFICE PERSON DAYS** | The number of days an inspector is on inspection activity |
| **REGULATION(S) CITED** | The specific regulation (s) that were cited as part of the inspection. |

| ENFORCEMENT DATA ELEMENT | DESCRIPTION |
|---|---|
| **OPERATOR IDENTIFIER (ID)** | A unique ID assigned to each pipeline operator |
| **OPERATOR NAME** | Name assigned to each pipeline operator |
| **UNIQUE IDENTIFIER (ID)** | A unique ID assigned to each inspection |
| **ENFORCEMENT LETTER TYPE** | Type of Enforcement Letter sent to each pipeline operator upon citation. These can be state-specific, and therefore predicates mapping to PHMSA equivalent for data commonality purposes. The following types were found to be collected from the sample set of state regulatory agencies during the course of the feasibility study: NOPV - Proposed Compliance Order, NOPV - Proposed Civil Penalty, NOA: Notice of Amendment, WL: Warning Letter, LOC: Letter of Concern. |
| **DATE OPENED** | The date an enforcement case was opened |
| **DATE CLOSED** | The date an enforcement case was closed |

| | |
|---|---|
| **CIVIL PENALTY ASSESSED** | The amount of civil penalty assessed |

In addition to determining if this set of key data elements was collected in full, issues were found amongst some State regulatory agencies regarding missing records linkage and data type conversion. The following outlines the data comparisons across the sample set.

Key Data Elements Collected

| | INSPECTION | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **KEY DATA ELEMENT** | **AL** | **CA** | **CT** | **FL** | **LA** | **MN** | **NV** | **NM** | **ND** | **RI** | **VA** |
| **OPERATOR IDENTIFIER (ID)** | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🔴 | 🟢 |
| **OPERATOR NAME** | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 |
| **UNIT IDENTIFIER (ID)** | 🔴 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🔴 | 🔴 | 🔴 | 🔴 | 🟢 |
| **UNIT NAME** | 🔴 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🔴 | 🟢 | 🟢 | 🔴 | 🟢 |
| **SYSTEM TYPE** | 🟢 | 🔴 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 |
| **UNIQUE IDENTIFIER (ID)** | 🔴 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🔴 | 🔴 | 🟢 |
| **INSPECTION TYPE** | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 |
| **START DATE** | 🟢 | 🟢 | 🔴 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 |
| **END DATE** | 🟢 | 🟢 | 🔴 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 |
| **AWAY FROM OFFICE (AFO) PERSON DAYS** | 🟢 | 🟢 | 🔴 | 🟢 | 🔴 | 🟢 | 🟢 | 🔴 | 🟢 | 🔴 | 🔴 |
| **OFFICE PERSON DAYS** | 🔴 | 🔴 | 🔴 | 🔴 | 🔴 | 🟢 | 🟢 | 🔴 | 🔴 | 🔴 | 🔴 |
| **REGULATION(S) CITED** | 🟢 | 🔴 | 🔴 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 |

**ENFORCEMENT**

| KEY DATA ELEMENT | AL | CA | CT | FL | LA | MN | NV | NM | ND | RI | VA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OPERATOR IDENTIFIER (ID) | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| OPERATOR NAME | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| UNIQUE IDENTIFIER (ID) | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| ENFORCEMENT LETTER TYPE | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| DATE OPENED | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| DATE CLOSED | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| CIVIL PENALTY ASSESSED | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

**Inspection Type Data Mapping**

## PHMSA SYSTEM-WIDE PROGRAM INSPECTIONS

| STATE REGULATORY AGENCY | **General Operations Inspections -** Inspections of an operator's Operations and Maintenance (O&M) Procedures. These inspections are typically conducted by a team of PHMSA inspectors and are performed for the larger pipeline operators who have a variety of geographically diverse pipeline facilities. For smaller pipeline operators, O&M Procedures are typically covered in conjunction with a Unit Inspection. | **Integrity Management Inspections -** Inspections of an operator's Integrity Management Program. During the period 2001 - 2004, PHMSA issued a series of new regulations requiring gas transmission and hazardous liquid pipeline operators to develop and implement comprehensive integrity and risk management programs, including requirements to periodically inspect and test pipelines to identify and | **Operator Qualification Inspections -** Inspections of an operator's Operator Qualification Program. In 1999 and subsequent years, PHMSA issued new Operator Qualification requirements for operators to have formal programs to qualify personnel for certain safety-sensitive tasks associated with operation and maintenance of their pipelines. PHMSA inspections provide a comprehensive | **Integrated Inspections -** Inspections resulting from a 2008 PHMSA initiative to develop an inspection approach that combines discrete inspection "types" (e.g., Unit Inspections, Operations and Maintenance Procedure Inspections, Integrity Management Inspections, etc.) into a single inspection that provides an integrated evaluation of an operator's safety |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| | | repair potentially injurious defects. These Integrity Management Inspections provide a comprehensive review of an operator's program and processes, and its testing and inspection plans and results. In 2011, PHMSA issued gas distribution integrity management regulations requiring operators to understand the risks faced by their systems and effectively manage integrity. | review of the operator's qualification program and processes, including the identification of all safety-sensitive tasks, the identification of individuals qualified to perform certain tasks, and the conduct of employee performance evaluations to assure proper performance of identified tasks. | management programs. Integrated inspections prioritize specific areas to be inspected based on system-specific risk information in order to apply PHMSA inspection resources to programs, geographic areas, and threats that pose higher risks. |
| **ALABAMA** | | Integrity Management | Operator Qualification | Standard |
| **CALIFORNIA** | Operation, Maintenance and Emergency Procedure Manual (HQ) | Integrity Management Program | Operator Qualification program | Standard (Field and Records) |
| **CONNECTICUT** | | | | |
| **FLORIDA** | | | OQ | |
| **LOUISIANA** | Standard Comprehensive | Construction | OQ | Breakout Tanks |
| **MINNESOTA** | Headquarters O&M Plan Review | | Operator Qualification (OQ) Plan Review, Operator Qualification Field Verification 432 | NG Leak Survey Field, NG Pressure MAOP Regulator & Relief Station, NG Corrosion Control Field, NG Aboveground Pipeline Facility Inspection, |
| **NEVADA** | Standard | | OQ Audits, Field OQ, Control Audit | Standard, Fields, Records, |
| **NEW MEXICO** | | | Operator Qualification | Standard Inspection |
| **NORTH DAKOTA** | | | | |

| | | | | |
|---|---|---|---|---|
| **RHODE ISLAND** | | | Operator Qualification | Standard, LNG, LPG, Master Meter |
| **VIRGINIA** | O&M Standard | Integrity Management | Operator Qualification | |

## PHMSA SITE-SPECIFIC FIELD INSPECTION

| STATE REGULATORY AGENCY | **Unit Inspections** - Inspections of individual pipeline facilities or lengths of pipeline (called "Inspection Units") designed to assure compliance with pipeline safety regulations and standards. Unit Inspections are performed on predefined portions of pipeline systems and oftentimes include inspection of pump or compressor stations, storage tanks, and other equipment in addition to the pipeline itself. For smaller operators, a single Unit Inspection may cover all of its pipeline facilities; larger operators often have multiple pipeline systems and, as a result, multiple Unit Inspections become necessary to examine all their facilities. Unit Inspections are sometimes also referred to by PHMSA as Standard Inspections. | **Integrity Management Field Verifications** - If the inspector has an opportunity to examine the operator's implementation of integrity management activities in the field, this inspection will be included in gas transmission and hazardous liquid Unit Inspections. Integrity management activities can include verification that procedures for conducting integrity assessments are followed, verification that pipeline excavation and repair activities were performed in accordance with regulations and applicable procedures, and that preventive and mitigate measures identified by the operator's integrity management program have been performed. | **Operator Qualification Field Verifications** - If the inspector has an opportunity to observe operator personnel performing duties in the field, this inspection will be included in Unit Inspections. Inspectors typically check that qualified individuals are performing the work and also check records demonstrating that the individuals' qualifications are current and accurate. Operator Qualification Field Verifications also confirm that field personnel are cognizant of Abnormal Operating Conditions. |
|---|---|---|---|
| **ALABAMA** | | | Incident/Accident |
| **CALIFORNIA** | | | |
| **CONNECTICUT** | | | |
| **FLORIDA** | DIMP | | |
| **LOUISIANA** | | Integrity Management, IMP | Operator Training |
| **MINNESOTA** | Distribution Integrity Management Program | Odorization Field, | On Site Operator Training |

| | | | |
|---|---|---|---|
| | (DIMP) Review, Integrity Management Plan (IMP) Review, Integrity management Plan Annual Progress Inspection, Integrity Management (IMP) Field Verification | | |
| **NEVADA** | | DIMP | Quarterly, Annual |
| **NEW MEXICO** | | Integrity Management, Distribution | |
| **NORTH DAKOTA** | | | |
| **RHODE ISLAND** | Integrity Management | | Operator Training |
| **VIRGINIA** | | Distribution Integrity Management, Transmission Integrity Management, Liquid Integrity Management | |

## PHMSA TARGETED INSPECTIONS/INVESTIGATIONS

| STATE REGULATORY AGENCY | **Failure Investigations** - Investigations performed following a pipeline failure to determine the cause of the release and any violations of the pipeline safety regulations that may have contributed to the failure. | **Specialized Inspections** - Inspections that focus in detail on a particular area of concern, oftentimes initiated following Unit Inspections, Failure Investigations, or other inspection activities where it is determined that a more intensive, in-depth inspection of a particular geographical area, pipeline system, or compliance area is warranted. | **Construction Inspections** - Inspections of a new pipeline construction project designed to assure the pipeline or facility is constructed, installed, and tested in accordance with applicable pipeline safety regulations and standards prior to its being placed in operation. | **Drug & Alcohol Inspections** - Inspections of an operator's drug and alcohol testing program designed to assure compliance with DOT and PHMSA's Drug & Alcohol Testing regulations and standards. | **Other Inspections** - Inspections focused on other specific areas of operator compliance and safety performance such as damage prevention, site security, and emergency response exercises. Also included are PHMSA follow-up activities associated with Corrective Action Orders and other PHMSA enforcement actions, as well as PHMSA investigations of concerns raised by members of the public. |
|---|---|---|---|---|---|
| **ALABAMA** | | | Construction | | Public Awareness, Control Room Management |
| **CALIFORNIA** | | | | Drug and Alcohol Program (HQ) | Public Awareness Program Evaluation, Control Room Program Management |
| **CONNECTICUT** | | | | | |
| **FLORIDA** | | Valves, Regulators, Leak Survey Records, Cathodic Protection, Galvanic Protection | | Drug and Alcohol | |
| **LOUISIANA** | Failure Investigation | Specialized, Specific | | Drug and Alcohol | Public Awareness, Onsite Citation, |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | Reinspection, Control Room Management |
| **MINNESOTA** | Root Cause Investigation | | | Drug/Alcohol HQ Plan Review, Drug/Alcohol Field 433 | Control Room Management Inspection (CRM), Public Awareness Review 434, Emergency Response Evaluation, Emergency Valve Evaluation, Subset Field Inspections (Describe Type), NG Const. Sewer Lateral Cross-Bore Prevention, Follow Up Inspection, Pipeline DP Evaluation & Complaint Process, Safety Related Condition Reports (SRCR) |
| **NEVADA** | | | | Construction | |
| **NEW MEXICO** | | | | Drug and Alcohol | Control Room Management, Public Awareness |
| **NORTH DAKOTA** | | | | | |
| **RHODE ISLAND** | Incident/Accident | | Construction | | Control Room Management, Damage Prevention, Compliance Follow-Up |
| **VIRGINIA** | | Incident | Corrosion Control | Design, Testing, Construction; Incorrect Daily Construction Schedule Information | Alcohol, Drug |

Enforcement Type Data Mapping

## ENFORCEMENT LETTER TYPE

| STATE REGULATORY AGENCY | CAO: Corrective Action Order | NOPV - Proposed Compliance Order | NOPV - Proposed Civil Penalty | NOA: Notice of Amendment | WL: Warning Letter | LOC: Letter of Concern |
|---|---|---|---|---|---|---|
| **ALABAMA** | | NOPV | | | | |
| **CALIFORNIA** | | NOPV - Agree to the proposed compliance order, Object to the proposed compliance order, Request execution of a Consent Order, Request of hearing | Pay the proposed civil penalty; Submit an offer in compromise of the proposed civil penalty, Submit written information in answer to the allegations or in mitigation of the CP, Request hearing | NOA | | |
| **CONNECTICUT** | | NOPV | NOPV | | WL | |
| **FLORIDA** | | NOV | Cite the maximum allowable liability for a fine. Fines are determined by the Commission through a legal proceeding. | | | |
| **LOUISIANA** | | NOPV | NOPV | NOA | WL | LOC |
| **MINNESOTA** | | NOPV - Case Closing Letter | Pipeline Operator Letter with or without civil penalty, Damage Prevention letter (non- | | | |

| | | | | |
|---|---|---|---|---|
| | | | pipeline) with or without civil penalty; Damage Prevention letter (excavator) with or without civil penalty, Request for Specific Information | |
| **NEVADA** | | Audit Summary Letter | NOPV | LOC |
| **NEW MEXICO** | | NOPV | NOPV | |
| **NORTH DAKOTA** | | | | |
| **RHODE ISLAND** | | NOPV | NOPV | |
| **VIRGINIA** | | NOPV | | |

**Missing Record Linkage**

No linkage between inspection records and enforcement records.

| AL | CA | CT | FL | LA | MN | NV | NM | ND | RI | VA |
|---|---|---|---|---|---|---|---|---|---|---|
| ● | | ● | | | | | | ● | ● | |

**Input Capture and Storage Mechanisms**

| INPUT CAPTURE MECHANISM | DESCRIPTION |
|---|---|
| **PHYSICAL DOCUMENTS** | Paper-based documents with either typed or written information on them are used to capture data. |
| **CUSTOM-BUILT APPLICATION** | A system custom-programmed by the state with input screens and workflows is used for data entry. |
| **SPREADSHEET SOFTWARE** | Data is entered directly into spreadsheet software such as Microsoft Excel |
| **DIGITAL DOCUMENTS** | Information captured into a digital document of various types, such as Word or PDF document with fillable fields. |
| **MICROSOFT OFFICE FORMS** | Information captured using Microsoft Office products such as Microsoft Access Forms, InfoPath, or similar. |

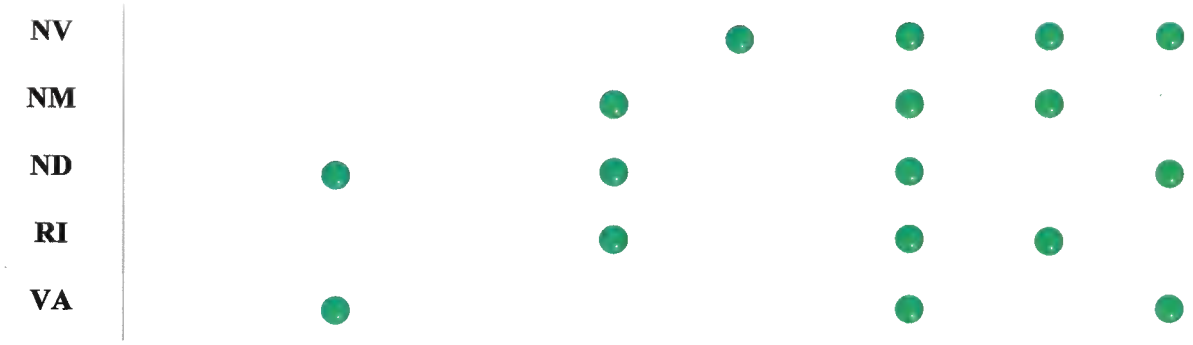
| STORAGE MECHANISM | DESCRIPTION |
|---|---|
| **UNSTRUCTURED FILES** | States utilizing a document-based approach are characterized by use of paper documents or unstructured digital files to maintain inspection or enforcement data. Examples of unstructured files included pdfs or word documents of inspection forms. |
| **STRUCTURED DIGITAL FILES** | Usage of offline structured files is characterized by storage of inspection or enforcement metrics in structured files such as spreadsheets or access databases that are not web-accessible. |
| **DATABASE BACKEND** | State agencies with a database backend possess systems that support data entry by users into a structured database. These systems present user interfaces for users to submit inspection or enforcement data and the entries are captured in a networked database. |

Inspection Data

| STATE AGENCY | INPUT CAPTURE MECHANISM | | | | | STORAGE MECHANISM | | |
|---|---|---|---|---|---|---|---|---|
| | Handwritten Documents | Custom-Built Application | Spreadsheet Software | Digital Documents | Microsoft Office Forms | Unstructured Files | Structured Digital Files | Database Storage |
| AL | | | ● | | ● | ● | ● | |
| CA | ● | ● | | | | ● | | ● |
| CT | | | | ● | | | | ● |
| FL | ● | ● | | | | ● | | ● |
| LA | | ● | | | | | | ● |
| MN | | ● | | | | | | ● |
| NV | | | | | ● | | | ● |
| NM | ● | | ● | | | ● | ● | |
| ND | | | | | ● | | | ● |
| RI | ● | | ● | | | ● | ● | |
| VA | | ● | | | | | | ● |

Enforcement Data

| STATE AGENCY | Documents | Application | Software | Documents | | Files | Digital Files | Storage |
|---|---|---|---|---|---|---|---|---|
| AL | | | ● | ● | | ● | ● | |
| CA | | ● | | | | ● | | ● |
| CT | | | | ● | ● | | | ● |
| FL | | | ● | ● | | ● | ● | |
| LA | | ● | | | | | ● | ● |
| MN | | ● | | | | ● | | ● |




**Data Challenges**

| DATA CHALLENGE | POTENTIAL APPROACH |
|---|---|
| **UNCOLLECTED KEY DATA ELEMENTS** | Given the disparity found across the sample set, PHMSA may need to determine if the noted key data elements should continue to be taken as a set, or rather if a value should be attributed to each distinct data element.<br><br>It would appear, based on the sample set, that there is correlation between the key data elements the state regulatory agencies are collecting vs not collecting that may apply to other future participants of NIPSRD. This should be taken into consideration.<br><br>It may be worthwhile to begin with a smaller set of key data elements for NIPSRD's inception and build upon it.<br><br>Another option could be to necessitate to participants to provide the entire set of key data elements from the onset of NIPSRD. |
| **MISSING RECORD LINKAGE** | This data challenge could be easily resolved by the creation of a unique identifier which would tie an inspection record to its enforcement record. This would necessitate the state regulatory agency to create and store this data element. |
| **DATA TYPE CONVERSION ISSUES** | This data challenge is amongst the most common found in integrated databases, and as such will require some planning.<br><br>The chief issue discovered amongst the sample set of state regulatory agencies was the use of free text to capture some of the key data elements. While standardization can be problematic, the larger issue seen occurs when key data elements are captured along with other data in a free text field, and therefore cannot be easily derived.<br><br>The ideal solution would be for each of the key data elements to be captured within its own field. |

## Appendix 2 Alabama Public Service Commission Evaluation

State Program Manager: Wallace R. Jones, Sr., Position: Administrator, Gas Pipeline Safety
Department: Gas Pipeline Safety Division
Number of Regulated Intrastate Pipeline Systems: 106
Gas Transmission Operators (Intrastate): 35
LNG Operators (Intrastate): 2
Hazardous Liquid Operators (Intrastate Trunklines): 5

### KEY DATA ELEMENT COLLECTION

Of the key data element sets required to create data commonality across the State regulatory agencies for the purposes of NIPSRD, the Alabama Public Service Commission was found to collect approximately 68 percent of those data elements:

| CATEGORY | KEY DATA ELEMENT | DATA COLLECTED |
|---|---|---|
| INSPECTION DATA ELEMENTS | OPERATOR IDENTIFIER (ID) | 🟢 |
| | OPERATOR NAME | 🟢 |
| | UNIT IDENTIFIER (ID) | 🔴 |
| | UNIT NAME | 🔴 |
| | SYSTEM TYPE | 🟢 |
| | UNIQUE IDENTIFIER (ID) | 🔴 |
| | INSPECTION TYPE | 🟢 |
| | START DATE | 🟢 |
| | END DATE | 🟢 |
| | AWAY FROM OFFICE (AFO) PERSON DAYS | 🟢 |
| | OFFICE PERSON DAYS | 🔴 |
| | REGULATION(S) CITED | 🟢 |

| | | |
|---|---|---|
| | **OPERATOR IDENTIFIER (ID)** |  |
| **ENFORCEMENT DATA ELEMENTS** | OPERATOR NAME |  |
| | UNIQUE IDENTIFIER (ID) |  |
| | ENFORCEMENT LETTER TYPE |  |
| | DATE OPENED |  |
| | DATE CLOSED |  |
| | CIVIL PENALTY ASSESSED |  |

## DATA CHALLENGES DISCOVERED

| DATA CHALLENGE | DETAILS |
|---|---|
| **MISSING RECORDS LINKAGE** | The absence of a Unique ID for both an Inspection record and an Enforcement record indicates the absence of records linkage between Inspection and Enforcement data. This needs to be addressed in order to create a complete record. |
| **DATA TYPE CONVERSION ISSUE(S)** | The Regulations Cited data element in the Inspection data set allows for free-form data entry. This lack of standardization could lead to issues in creating data commonality, both within the state regulatory agency as well in the creation of NIPSRD. |
| **DATA GOVERNANCE POLICY** | In regards to data governance policy, the state regulatory agency does not share any inspection or enforcement data without a subpoena. This would prove to be an impediment to adding the requisite data sets to NIPSRD. |

## POTENTIAL OPERATIONAL CHALLENGES (DATA)

| POTENTIAL CHALLENGE | DETAILS |
|---|---|
| **OPERATOR REGISTRATIONS (CHANGES)** | There is not a common established standard for recording changes to operator registration information, and as such it poses a data integrity risk if unresolved. |

## TECHNICAL OVERVIEW

The Alabama Public Services Commission uses Microsoft Word and Microsoft Excel to track inspection and enforcement data. This includes Excel forms for recording the inspection, master spreadsheets for tracking, and a sophisticated analysis spreadsheet for evaluating risks for future inspections.

## INSPECTION DATA ENTRY AND STORAGE

**ALABAMA PUBLIC SERVICE COMMISSION – INSPECTION DATA**

| CATEGORY | Item | Description |
|---|---|---|
| **DATA ENTRY** | Microsoft Office Forms | Inspection information is collected on fillable electronic Word documents |
| | Spreadsheet Software | High-level details of inspections are entered directly into spreadsheets for analysis and tracking. |
| **STORAGE** | Unstructured Files | The inspection information captured is stored in filing cabinets on paper |
| | Structured Digital Files | Inspection overview information is stored in digital spreadsheets |

## ENFORCEMENT DATA ENTRY AND STORAGE

**ALABAMA PUBLIC SERVICE COMMISSION – ENFORCEMENT DATA**

| CATEGORY | Item | Description |
|---|---|---|
| **DATA ENTRY** | Digital Documents | Enforcement letters are manually created from Microsoft Word templates |
| | Spreadsheet Software | High-level details of enforcements are entered directly into spreadsheets for analysis and tracking. |
| **STORAGE** | Unstructured Files | Enforcement letters are stored as digital Microsoft Word files |
| | Structured Digital Files | High-level details of Enforcements are stored in offline Excel files |

## POTENTIAL OPERATIONAL CHALLENGES (TECHNICAL)

| POTENTIAL CHALLENGE | DETAILS |
|---|---|
| **LIMITED RESOURCES** | Alabama PSC has limited staffing and resources for IT initiatives, and this may impact their ability to upgrade technology for compatibility with NIPSRD. A technical approach for integrating Alabama with NIPSRD will have to be chosen that accounts for Alabama's limited technical staffing and infrastructure. |

## Appendix 3 California State Fire Marshal Evaluation

State Program Manager: Doug Allen, Position: Supervising Pipeline Safety Engineer, Pipeline Safety Division
Department: California State Fire Marshal
Number of Regulated Intrastate Pipeline Systems: 55
Hazardous Liquid Operators (Intrastate): 50

### KEY DATA ELEMENT COLLECTION

Of the key data element sets required to create data commonality across the State regulatory agencies for the purposes of NIPSRD, the California Office of the State Fire Marshall was found to collect approximately 79 percent of those data elements:

| CATEGORY | KEY DATA ELEMENT | DATA COLLECTED |
|---|---|---|
| INSPECTION DATA ELEMENTS | OPERATOR IDENTIFIER (ID) | 🟢 |
| | OPERATOR NAME | 🟢 |
| | UNIT IDENTIFIER (ID) | 🟢 |
| | UNIT NAME | 🟢 |
| | SYSTEM TYPE | 🔴 |
| | UNIQUE IDENTIFIER (ID) | 🟢 |
| | INSPECTION TYPE | 🟢 |
| | START DATE | 🟢 |
| | END DATE | 🟢 |
| | AWAY FROM OFFICE (AFO) PERSON DAYS | 🟢 |
| | OFFICE PERSON DAYS | 🔴 |
| | REGULATION(S) CITED | 🔴 |

| ENFORCEMENT DATA ELEMENTS | |
|---|---|
| **OPERATOR IDENTIFIER (ID)** | 🟢 |
| OPERATOR NAME | 🔴 |
| UNIQUE IDENTIFIER (ID) | 🟢 |
| ENFORCEMENT LETTER TYPE | 🟢 |
| DATE OPENED | 🟢 |
| DATE CLOSED | 🟢 |
| CIVIL PENALTY ASSESSED | 🟢 |

## DATA CHALLENGES DISCOVERED

| DATA CHALLENGE | DETAILS |
|---|---|
| **MAPPING REGULATIONS** | The current system design does not always allow the state regulatory agency to join state-specific regulations to the overarching federal regulations. This must be accounted for when designing a national integrated pipeline safety regulatory database. However, this state regulatory agency is currently in the midst of a system re-design that will account for this data challenge. |

## POTENTIAL OPERATIONAL CHALLENGES (DATA)

| POTENTIAL CHALLENGE | DETAILS |
|---|---|
| **DATA GOVERNANCE POLICY** | California OSFM does not release information on civil penalties until all litigation has been resolved; this policy applies to the release of Enforcement Letters as well. This will delay delivery of some key data elements until such proceedings are completed unless a special exception is established for PHMSA and NIPSRD. |

## TECHNICAL OVERVIEW

California's Office of the State Fire Marshall (OSFM) utilizes a combination of Visual Basic application, ASP.NET application, Oracle SQL Database, Microsoft Access Database, and paper forms to track inspection and enforcement data.

## INSPECTION DATA ENTRY AND STORAGE

**CALIFORNIA OFFICE OF THE STATE FIRE MARSHALL – INSPECTION DATA**

| CATEGORY | Item | Description |
|---|---|---|
| **DATA ENTRY** | Handwritten Documents | Inspectors initially capture inspection results on handwritten forms |
| | Custom-Built Application | A Visual Basic application has been developed by OSFM to capture inspection information |
| **STORAGE** | Unstructured Files | Original inspection forms are retained as paper copies |
| | Database Files | Data input into OSFM's custom application is retained within an Access database. |

## ENFORCEMENT DATA ENTRY AND STORAGE

**CALIFORNIA OFFICE OF THE STATE FIRE MARSHALL – ENFORCEMENT DATA**

| CATEGORY | Item | Description |
|---|---|---|
| **DATA ENTRY** | Custom-Built Application | OSFM maintains a ASP.NET framework application for enforcement data entry, with extensive validation rules |
| **STORAGE** | Unstructured Files | Enforcement letters are manually created in Microsoft Word and soft copies are saved to a central file server |
| | Database Storage | Oracle databases are used to store enforcement data |

## POTENTIAL OPERATIONAL CHALLENGES (TECHNICAL)

| POTENTIAL CHALLENGE | DETAILS |
|---|---|
| **SYSTEMS DEVELOPMENT** | The deployed systems are currently undergoing active development and as such, are currently in flux. For data bridge solutions, considerations would have to be made for the state to inform PHMSA regularly of changes in the data models that result from ongoing development.<br><br>Once development has been completed, a re-evaluation will be necessary. |

## Appendix 4 Connecticut Department of Energy and Environmental Protection Evaluation

State Program Manager: Karl H. Baker, Position: Public Utilities Supervisor of Technical Analysis
Department: Connecticut Department of Energy and Environmental Protection
Number of Regulated Intrastate Pipeline Systems: 4
LNG Operators (Intrastate): 3

### KEY DATA ELEMENT COLLECTION

Of the key data elements required to create data commonality across the State regulatory agencies for the purposes of NIPSRD, the Connecticut Department of Energy and Environmental Protection was found to collect approximately 68 percent of those data elements:

| CATEGORY | KEY DATA ELEMENT | DATA COLLECTED |
|---|---|---|
| INSPECTION DATA ELEMENTS | OPERATOR IDENTIFIER (ID) | ● |
| | OPERATOR NAME | ● |
| | UNIT IDENTIFIER (ID) | ● |
| | UNIT NAME | ● |
| | SYSTEM TYPE | ● |
| | UNIQUE IDENTIFIER (ID) | ● |
| | INSPECTION TYPE | ● |
| | START DATE | ● |
| | END DATE | ● |
| | AWAY FROM OFFICE (AFO) PERSON DAYS | ● |
| | OFFICE PERSON DAYS | ● |
| | REGULATION(S) CITED | ● |

| | | |
|---|---|---|
| | **OPERATOR IDENTIFIER (ID)** |  |
| **ENFORCEMENT DATA ELEMENTS** | OPERATOR NAME |  |
| | UNIQUE IDENTIFIER (ID) |  |
| | ENFORCEMENT LETTER TYPE |  |
| | DATE OPENED |  |
| | DATE CLOSED |  |
| | CIVIL PENALTY ASSESSED |  |

## DATA CHALLENGES DISCOVERED

| DATA CHALLENGE | DETAILS |
|---|---|
| **MISSING RECORDS LINKAGE** | The data reviewed indicates an absence of records linkage between Inspection and Enforcement data. This needs to be addressed in order to create a complete record. |
| **DATA TYPE CONVERSION ISSUE(S)** | The state regulatory agency's current system design allows for only a single regulation to be contained within this data field. Any additional regulations are captured in a free-form data entry field as part of the description of the violation. In the case where both federal as well as state regulations are cited, it is the federal regulation that is entered within this Regulations Cited data field.<br><br>The majority of the enforcement data elements captured within the Violations allows for free-form data entry. This lack of standardization could lead to issues in creating data commonality, both within the state regulatory agency as well in creating NIPSRD. |

## POTENTIAL OPERATIONAL CHALLENGES (DATA)

| POTENTIAL CHALLENGE | DETAILS |
|---|---|
| **ENFORCEMENT LETTERS WITHOUT CORRESPONDING INSPECTION RECORD** | Enforcement letters are sometimes generated without a prior inspection due to self-reporting by operators or other circumstances. This data possibility will have to be considered during creation of the NIPSRD data model. |

## TEHCNICAL OVERVIEW

The Connecticut Department of Energy and Environmental Protection (DEEP) has a detailed database system built on Adobe PDF, Microsoft Access, and Lotus Notes DB technologies that they utilize for capturing data and generating reports. The data entry methodology and storage mechanisms are described in detail below.

## INSPECTION DATA ENTRY AND STORAGE

**CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION – INSPECTION DATA**

| CATEGORY | Item | Description |
|---|---|---|
| **DATA ENTRY** | Digital Documents | Inspectors capture information directly into fillable PDF forms during fieldwork |
| **STORAGE** | Database Storage | An Access database is used to store inspection data |

## ENFORCEMENT DATA ENTRY AND STORAGE

**CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION – ENFORCEMENT DATA**

| CATEGORY | Item | Description |
|---|---|---|
| **DATA ENTRY** | Digital Documents | Enforcement letters are automatically generated from data entered in the enforcement database |
| | Microsoft Office Forms | Inspectors manually enter violation and enforcement data into an Access Database that is located separately from the Inspections database. |
| **STORAGE** | Database Storage | CT DEEP utilizes an Access database and Lotus Notes DB to store enforcement data. The Access database maintains the majority of enforcement data for CT DEEP. The Lotus Notes DB is run by the State court and maintains the court docket and tracks civil penalties. |

## POTENTIAL OPERATIONAL CHALLENGES (TECHNICAL)

| POTENTIAL CHALLENGE | DETAILS |
|---|---|
| **MULTIPLE DATABASES FOR ENFORCEMENT SOURCE DATA** | The spread of enforcement data between the Access database and Lotus Notes database environments will pose additional difficulty in creating a data bridge. Analysis will have to be conducted to determine what ways the data may be tracked between environments and the differences in what data is stored in which systems. |

## Appendix 5 Florida Public Service Commission Evaluation

State Program Manager: Rick Moses, Position: Chief, Bureau of Safety
Department: Florida Public Service Commission
Number of Regulated Intrastate Pipeline Systems: 94
Gas Transmission Operators (Intrastate): 35

### KEY DATA ELEMENT COLLECTION

Of the key data elements required to create data commonality across the State regulatory agencies for the purposes of NIPSRD, the Florida Public Service Commission was found to collect approximately 95 percent of those data elements:

| CATEGORY | KEY DATA ELEMENT | DATA COLLECTED |
|---|---|---|
| INSPECTION DATA ELEMENTS | OPERATOR IDENTIFIER (ID) | ● |
| | OPERATOR NAME | ● |
| | UNIT IDENTIFIER (ID) | ● |
| | UNIT NAME | ● |
| | SYSTEM TYPE | ● |
| | UNIQUE IDENTIFIER (ID) | ● |
| | INSPECTION TYPE | ● |
| | START DATE | ● |
| | END DATE | ● |
| | AWAY FROM OFFICE (AFO) PERSON DAYS | ● |
| | OFFICE PERSON DAYS | ● |
| | REGULATION(S) CITED | ● |

| | | |
|---|---|---|
| | **OPERATOR IDENTIFIER (ID)** | ● |
| **ENFORCEMENT DATA ELEMENTS** | OPERATOR NAME | ● |
| | UNIQUE IDENTIFIER (ID) | ● |
| | ENFORCEMENT LETTER TYPE | ● |
| | DATE OPENED | ● |
| | DATE CLOSED | ● |
| | CIVIL PENALTY ASSESSED | ● |

## DATA CHALLENGES DISCOVERED

| DATA CHALLENGE | DETAILS |
|---|---|
| **DATA TYPE CONVERSION ISSUE(S)** | The state regulatory agency's current system design allows for regulations to be captured in a multitude of ways (ex. Multiple regulations, mingling of federal and state regulations, etc.) within this single data field. The extraction of this data element into NIPSRD will prove challenging. |

## POTENTIAL OPERATIONAL CHALLENGES (DATA)

| POTENTIAL CHALLENGE | DETAILS |
|---|---|
| **OPERATOR REGISTRATIONS (CHANGES)** | There is not a common established standard for recording changes to operator registration information, and as such it poses a data integrity risk if unresolved. |

## TECHNICAL OVERVIEW

The Florida Public Service Commission (FL PSC) currently uses a system of PDF forms and a tracking database that often requires manual intervention. The data entry methodology and storage mechanisms are described in detail below.

## INSPECTION DATA ENTRY AND STORAGE

**FLORIDA PUBLIC SERVICE COMMISSION – INSPECTION DATA**

| CATEGORY | Item | Description |
|---|---|---|
| **DATA ENTRY** | Handwritten Documents | Inspection forms are filled out by hand by inspectors |
| | Custom-Built Application | Florida has a web-based .NET application for capturing inspection details |
| **STORAGE** | Database Storage | Inspection data is stored in a database |
| | Unstructured Documents | Some details on original inspection forms are not entered into the database, but instead reside within PDF forms |

## ENFORCEMENT DATA ENTRY AND STORAGE

**FLORIDA PUBLIC SERVICE COMMISSION – ENFORCEMENT DATA**

| CATEGORY | Item | Description |
|---|---|---|
| **DATA ENTRY** | Digital Documents | Enforcement letters |
| | Spreadsheet Software | Some enforcement data is captured directly into Excel |
| **STORAGE** | Unstructured Files | Additional enforcement tracking is conducted via Excel spreadsheet |
| | Structured Digital Files | Enforcement data is maintained in a separate database |

## POTENTIAL OPERATIONAL CHALLENGES (TECHNICAL)

| POTENTIAL CHALLENGE | DETAILS |
|---|---|
| **DISTRIBUTED DATA SOURCES** | Florida PSC maintains data across two databases, multiple spreadsheets, and individual PDF forms; This would pose additional complexity for data bridge solutions. |

## Appendix 6 Louisiana Department of Natural Resources Evaluation

State Program Manager: Steven Giambrone, Position: Director
Department: Louisiana Department of Natural Resources
Number of Regulated Intrastate Pipeline Systems: 219
Gas Transmission Operators (Intrastate): 89
Hazardous Liquid Operators (Intrastate Trunklines): 56

Key Data Element Collection

Of the key data element sets required to create data commonality across the State regulatory agencies for the purposes of NIPSRD, the Louisiana Department of Natural Resources was found to collect approximately 89 percent of those data elements:

| CATEGORY | KEY DATA ELEMENT | DATA COLLECTED |
|---|---|---|
| INSPECTION DATA ELEMENTS | OPERATOR IDENTIFIER (ID) |  |
| | OPERATOR NAME |  |
| | UNIT IDENTIFIER (ID) |  |
| | UNIT NAME |  |
| | SYSTEM TYPE |  |
| | UNIQUE IDENTIFIER (ID) |  |
| | INSPECTION TYPE |  |
| | START DATE |  |
| | END DATE |  |
| | AWAY FROM OFFICE (AFO) PERSON DAYS |  |
| | OFFICE PERSON DAYS |  |
| | REGULATION(S) CITED |  |

| | | |
|---|---|---|
| | **OPERATOR IDENTIFIER (ID)** | ● |
| **ENFORCEMENT DATA ELEMENTS** | OPERATOR NAME | ● |
| | UNIQUE IDENTIFIER (ID) | ● |
| | ENFORCEMENT LETTER TYPE | ● |
| | DATE OPENED | ● |
| | DATE CLOSED | ● |
| | CIVIL PENALTY ASSESSED | ● |

## DATA CHALLENGES DISCOVERED

| DATA CHALLENGE | DETAILS |
|---|---|
| **MAPPING REGULATIONS** | The current system design does not always allow the state regulatory agency to join state-specific regulations to the overarching federal regulations. This must be accounted for when designing a national integrated pipeline safety regulatory database. |

## POTENTIAL OPERATIONAL CHALLENGES (DATA)

None discovered.

## TECHNICAL OVERVIEW

The Louisiana Department of Natural Resources (LA DNR) utilizes two in-house applications, spreadsheets, and digital documents for managing inspection and enforcement data. These input methodologies and storage mechanisms are described in detail below.

## INSPECTION DATA ENTRY AND STORAGE

**LOUISIANA DEPARTMENT OF NATURAL RESOURCES – INSPECTION DATA**

| CATEGORY | Item | Description |
|---|---|---|
| **DATA ENTRY** | Custom-Built Application | The Mobile Pipeline Inspection and Reinspection Tool (MPIRE) is used for tracking inspections conducted by personnel |
| **STORAGE** | Database Storage | Louisiana DNR utilizes an Oracle database to store inspection data |

## ENFORCEMENT DATA ENTRY AND STORAGE

**LOUISIANA DEPARTMENT OF NATURAL RESOURCES – ENFORCEMENT DATA**

| CATEGORY | Item | Description |
|---|---|---|
| **DATA ENTRY** | Custom-Built Application | The Strategic Online Natural Resources Information System (SONRIS) serves as a warehouse of information for state activities related to natural resources |
| **STORAGE** | Structured Digital Files | Some violation data is also stored outside of SONRIS on spreadsheets |
| | Database Storage | Enforcement data is stored within an Oracle database |

## POTENTIAL OPERATIONAL CHALLENGES (TECHNICAL)

| POTENTIAL CHALLENGE | DETAILS |
|---|---|
| **LIMITED RESOURCES** | Louisiana DNR has limited staffing and resources for IT initiatives, and this may impact their ability to upgrade technology for compatibility with NIPSRD. A technical approach for integrating Louisiana with NIPSRD will have to be chosen that accounts for Louisiana's limited technical staffing and infrastructure. |

## Appendix 7 Minnesota Office of Pipeline Safety Evaluation

State Program Manager: Jon Wolfgram, Position: Program Manager/Chief Engineer
Department: Minnesota Department of Public Safety Office of Pipeline Safety
Number of Regulated Intrastate Pipeline Systems: 83*
Gas Transmission Operators (Intrastate): 23
LNG Operators (Intrastate): 2
Hazardous Liquid Operators (Intrastate Trunklines): 3

Of note: Michigan Public Service Commission uses the same data system. The two State regulatory agencies are currently collaborating to determine requisite updates to the current system.

### KEY DATA ELEMENT COLLECTION

Of the key data element sets required to create data commonality across the State regulatory agencies for the purposes of NIPSRD, the Minnesota Department of Public Safety was found to collect approximately 100 percent of those data elements:

| CATEGORY | KEY DATA ELEMENT | DATA COLLECTED |
|---|---|---|
| INSPECTION DATA ELEMENTS | OPERATOR IDENTIFIER (ID) | ● |
| | OPERATOR NAME | ● |
| | UNIT IDENTIFIER (ID) | ● |
| | UNIT NAME | ● |
| | SYSTEM TYPE | ● |
| | UNIQUE IDENTIFIER (ID) | ● |
| | INSPECTION TYPE | ● |
| | START DATE | ● |
| | END DATE | ● |
| | AWAY FROM OFFICE (AFO) PERSON DAYS | ● |
| | OFFICE PERSON DAYS | ● |
| | REGULATION(S) CITED | ● |

| | | |
|---|---|---|
| | **OPERATOR IDENTIFIER (ID)** | ● |
| ENFORCEMENT DATA ELEMENTS | OPERATOR NAME | ● |
| | UNIQUE IDENTIFIER (ID) | ● |
| | ENFORCEMENT LETTER TYPE | ● |
| | DATE OPENED | ● |
| | DATE CLOSED | ● |
| | CIVIL PENALTY ASSESSED | ● |

## DATA CHALLENGES DISCOVERED

None discovered.

## POTENTIAL OPERATIONAL CHALLENGES (DATA)

None discovered.

## TECHNICAL OVERVIEW

The Minnesota Department of Public Safety (MN DPS) has developed a custom application with database backing for tracking their inspection and enforcement data.

## INSPECTION DATA ENTRY AND STORAGE

**MINNESOTA DEPARTMENT OF PUBLIC SAFETY – INSPECTION DATA**

| CATEGORY | Item | Description |
|---|---|---|
| **DATA ENTRY** | Custom-Built Application | Minnesota DPS has a .NET C# application for data entry. Offline capabilities allow for strong data validation |
| **STORAGE** | Database Storage | The application syncs local data to the master SQL database when inspectors return to the office or connect via VPN, allowing for central data control and reporting. |

## ENFORCEMENT DATA ENTRY AND STORAGE

**MINNESOTA DEPARTMENT OF PUBLIC SAFETY – ENFORCEMENT DATA**

| CATEGORY | Item | Description |
|---|---|---|
| **DATA ENTRY** | Custom-Built Application | Minnesota DPS uses the same .NET C# application for enforcement data entry as well. Offline capabilities allow for strong data validation and tracking of violations. |
| **STORAGE** | Database Storage | The application syncs local data to the master SQL database when inspectors return to the office or connect via VPN, allowing for central data control and reporting. |
| | Unstructured Files | Enforcement letters are generated by the database application directly from the issues noted in the inspection |

## POTENTIAL OPERATIONAL CHALLENGES (TECHNICAL)

None discovered.

## Appendix 8 Nevada Public Utilities Commission Evaluation

State Program Manager: Neil Pascual, Position: Senior Pipeline Safety Engineer (Program Manager)
Department: Nevada Public Utilities Commission
Number of Regulated Intrastate Pipeline Systems: 2
Gas Transmission Operators (Intrastate): 7

### KEY DATA ELEMENT COLLECTION

Of the key data element sets required to create data commonality across the State regulatory agencies for the purposes of NIPSRD, the Nevada Public Utilities Commission was found to collect approximately 89 percent of those data elements:

| CATEGORY | KEY DATA ELEMENT | DATA COLLECTED |
|---|---|---|
| INSPECTION DATA ELEMENTS | OPERATOR IDENTIFIER (ID) | 🟢 |
| | OPERATOR NAME | 🟢 |
| | UNIT IDENTIFIER (ID) | 🔴 |
| | UNIT NAME | 🔴 |
| | SYSTEM TYPE | 🟢 |
| | UNIQUE IDENTIFIER (ID) | 🟢 |
| | INSPECTION TYPE | 🟢 |
| | START DATE | 🟢 |
| | END DATE | 🟢 |
| | AWAY FROM OFFICE (AFO) PERSON DAYS | 🟢 |
| | OFFICE PERSON DAYS | 🟢 |
| | REGULATION(S) CITED | 🟢 |

| ENFORCEMENT DATA ELEMENTS | |
|---|---|
| | **OPERATOR IDENTIFIER (ID)** |
| | OPERATOR NAME |
| | UNIQUE IDENTIFIER (ID) |
| | ENFORCEMENT LETTER TYPE |
| | DATE OPENED |
| | DATE CLOSED |
| | CIVIL PENALTY ASSESSED |

## DATA CHALLENGES DISCOVERED

None Discovered.

## POTENTIAL OPERATIONAL CHALLENGES (DATA)

| POTENTIAL CHALLENGE | DETAILS |
|---|---|
| **GRANULAR TIMEKEEPING** | Applications developed by Nevada PUC track employee time on a more granular level than seen in federal annual reports or in other state agencies. This could present a potential challenge for data type conversion when sourced to NIPSRD. |

## TECHNICAL OVERVIEW

The Nevada Public Utilities Commission (NV PUC) maintains an application built with Microsoft InfoPath, Visual Basic, Access database, and SQL database technologies for both inspection and enforcement data.

## INSPECTION DATA ENTRY AND STORAGE

**NEVADA PUBLIC UTILITIES COMMISSION - INSPECTION DATA**

| CATEGORY | Item | Description |
|---|---|---|
| **DATA ENTRY** | Microsoft Office Forms | Inspectors in the field enter their data into a local Access database via Microsoft InfoPath |
| **STORAGE** | Database Storage | Access database and SQL database are both being utilized by Nevada to store inspection data. Data is being replicated from Access database to a SQL database for ease of reporting |

## ENFORCEMENT DATA ENTRY AND STORAGE

**NEVADA PUBLIC UTILITIES COMMISSION - ENFORCEMENT DATA**

| CATEGORY | Item | Description |
|---|---|---|
| **DATA ENTRY** | Microsoft Office Forms | Enforcement info is maintained via InfoPath |
| **STORAGE** | Database Storage | Enforcement data is co-located in the same SQL database as inspection data |
| | Unstructured Files | Enforcement letters are stored separately from the database |
| | Structured Digital Files | Data related to tracking compliance or civil penalties is tracked in a separate spreadsheet from the database |

## POTENTIAL OPERATIONAL CHALLENGES (TECHNICAL)

| POTENTIAL CHALLENGE | DETAILS |
|---|---|
| **ONGOING DEVELOPMENT** | Nevada PUC is currently transitioning from Microsoft InfoPath to Windows Presentation Foundation. This change is unlikely to affect the underlying data model, so impact should be minimal. However, these updates should be monitored for potential changes to data model and impact to data integrity. |

## Appendix 9 New Mexico Public Regulation Commission Evaluation

State Program Manager: Jason Montoya, Position: Bureau Chief
Department: New Mexico Public Regulation Commission
Number of Regulated Intrastate Pipeline Systems: 65
Gas Transmission Operators (Intrastate): 21
Hazardous Liquid Operators (Intrastate Trunklines): 8

Of note: the State regulatory agency is willing to allocate the necessary resources to input all requisite data with the understanding that there will be no recurrence of this identical input. This would eliminate duplicity of effort going forth amongst their state-specific and federal systems, as well as making use of the potential advantages provided by PHMSA's analytic toolset in their inspection planning and prioritization efforts.

### KEY DATA ELEMENT COLLECTION

Of the key data element sets required to create data commonality across the State regulatory agencies for the purposes of NIPSRD, the New Mexico Public Regulation Commission was found to collect approximately 84 percent of those data elements:

| CATEGORY | KEY DATA ELEMENT | DATA COLLECTED |
|---|---|---|
| INSPECTION DATA ELEMENTS | OPERATOR IDENTIFIER (ID) |  |
| | OPERATOR NAME |  |
| | UNIT IDENTIFIER (ID) |  |
| | UNIT NAME |  |
| | SYSTEM TYPE |  |
| | UNIQUE IDENTIFIER (ID) |  |
| | INSPECTION TYPE |  |
| | START DATE |  |
| | END DATE |  |
| | AWAY FROM OFFICE (AFO) PERSON DAYS |  |
| | OFFICE PERSON DAYS |  |
| | REGULATION(S) CITED |  |

| | | |
|---|---|---|
| ENFORCEMENT DATA ELEMENTS | OPERATOR IDENTIFIER (ID) | ● |
| | OPERATOR NAME | ● |
| | UNIQUE IDENTIFIER (ID) | ● |
| | ENFORCEMENT LETTER TYPE | ● |
| | DATE OPENED | ● |
| | DATE CLOSED | ● |
| | CIVIL PENALTY ASSESSED | ● |

## DATA CHALLENGES DISCOVERED

| DATA CHALLENGE | DETAILS |
|---|---|
| **DATA TYPE CONVERSION ISSUE(S)** | The state regulatory agency captures System Type as a portion of the free text contained within the Unit Description field in the Inspection data set. The extraction of this data element into NIPSRD could prove challenging.<br><br>The state regulatory agency's current system design allows for regulations cited to be captured in a free-form data entry field. This lack of standardization could lead to issues in creating data commonality, both within the state regulatory agency as well in the creation of NIPSRD. |

## POTENTIAL OPERATIONAL CHALLENGES (DATA)

None discovered.

## TECHNICAL OVERVIEW

The New Mexico Public Regulation Commission's data is collected on paper inspection forms and in digital word documents. High-level details about inspections and enforcements are manually aggregated into multiple Excel spreadsheets that provide information for the PHMSA annual reports.

## INSPECTION DATA ENTRY AND STORAGE

**NEW MEXICO PUBLIC REGULATION COMMISSION – INSPECTION DATA**

| CATEGORY | Item | Description |
|---|---|---|
| | Handwritten Documents | All inspection data is recorded on paper forms |
| | Spreadsheet Software | Users manually enters some high-level data into Excel |
| STORAGE | Unstructured Files | When the inspector submits the forms to the office, a PDF copy then serves as the primary record. These files are indexed and can be searched by another program that PRC maintains. |
| | Structured Digital Files | New Mexico PRC utilizes spreadsheets to manually aggregate information for the PHMSA annual reports. |

## ENFORCEMENT DATA ENTRY AND STORAGE

**NEW MEXICO PUBLIC REGULATION COMMISSION – ENFORCEMENT DATA**

| CATEGORY | Item | Description |
|---|---|---|
| DATA ENTRY | Digital Documents | Enforcement letters are generated from Word templates |
| STORAGE | Unstructured Files | Enforcement letters are stored on the file server with the relevant inspection form |
| | Structured Digital Files | Spreadsheets are available for each year detailing high level data |

## POTENTIAL OPERATIONAL CHALLENGES (TECHNICAL)

| POTENTIAL CHALLENGE | DETAILS |
|---|---|
| LIMITED RESOURCES | New Mexico PRC maintains a limited staffing for IT tasks. This will make implementation of NIPSRD integration difficult if the proposed system requires extensive system buildout on behalf of New Mexico's staff. |

## Appendix 10 North Dakota Public Service Commission Evaluation

State Program Manager: Aaron Morman/Craig Reamann, Position: Program Manager
Department: North Dakota Public Service Commission
Number of Regulated Intrastate Pipeline Systems: 9
Gas Transmission Operators (Intrastate): 6

### KEY DATA ELEMENT COLLECTION

Of the key data element sets required to create data commonality across the State regulatory agencies for the purposes of NIPSRD, the North Dakota Public Service Commission was found to collect approximately 79 percent of those data elements:

| CATEGORY | KEY DATA ELEMENT | DATA COLLECTED |
|---|---|---|
| INSPECTION DATA ELEMENTS | OPERATOR IDENTIFIER (ID) | 🟢 |
| | OPERATOR NAME | 🟢 |
| | UNIT IDENTIFIER (ID) | 🔴 |
| | UNIT NAME | 🟢 |
| | SYSTEM TYPE | 🟢 |
| | UNIQUE IDENTIFIER (ID) | 🔴 |
| | INSPECTION TYPE | 🟢 |
| | START DATE | 🟢 |
| | END DATE | 🟢 |
| | AWAY FROM OFFICE (AFO) PERSON DAYS | 🟢 |
| | OFFICE PERSON DAYS | 🔴 |
| | REGULATION(S) CITED | 🟢 |

| ENFORCEMENT DATA ELEMENTS | |
|---|---|
| | **OPERATOR IDENTIFIER (ID)** |
| | OPERATOR NAME |
| | UNIQUE IDENTIFIER (ID) |
| | ENFORCEMENT LETTER TYPE |
| | DATE OPENED |
| | DATE CLOSED |
| | CIVIL PENALTY ASSESSED |

## DATA CHALLENGES DISCOVERED

| DATA CHALLENGE | DETAILS |
|---|---|
| **MISSING RECORDS LINKAGE** | The absence of a Unique ID for both an Inspection record and an Enforcement record indicates the absence of records linkage between Inspection and Enforcement data. This needs to be addressed in order to create a complete record. |
| **DATA TYPE CONVERSION ISSUE(S)** | The Regulations Cited data element in the Inspection data set allows for free-form data entry. This lack of standardization could lead to issues in creating data commonality, both within the state regulatory agency as well in the creation of NIPSRD. |

## POTENTIAL OPERATIONAL CHALLENGES (DATA)

None discovered.

## TECHNICAL OVERVIEW

The North Dakota Public Service Commission's current system utilizes fillable digital files, databases, file servers, and enforcement letter templates to track inspection and enforcement information. In addition, they are currently building and transitioning to a new system of data capture and storage.

## INSPECTION DATA ENTRY AND STORAGE

**NORTH DAKOTA PUBLIC SERVICE COMMISSION – INSPECTION DATA**

| CATEGORY | Item | Description |
|---|---|---|
| **DATA ENTRY** | Microsoft Office Forms | Inspection details are entered into Microsoft Word document while out in the field |
| **STORAGE** | Database Storage | High-level inspection details are tracked via database. |

## ENFORCEMENT DATA ENTRY AND STORAGE

**NORTH DAKOTA PUBLIC SERVICE COMMISSION – ENFORCEMENT DATA**

| CATEGORY | Item | Description |
|---|---|---|
| **DATA ENTRY** | Digital Documents | Enforcements letters are generated via Word templates and filled |
| | Custom-Built Application | ND PSC maintains a docket system for handling Court Dockets |
| **STORAGE** | Unstructured Files | Enforcement letters are stored digitally on a file server |
| | Database Storage | High-level enforcement details are maintained in database. |

## POTENTIAL OPERATIONAL CHALLENGES (TECHNICAL)

| POTENTIAL CHALLENGE | DETAILS |
|---|---|
| **FUTURE DEVELOPMENT** | North Dakota PSC is currently developing a new iteration of inspection and enforcement systems. These new processes are currently anticipated in early 2018 and will feature expanded data validation and database storage. This development will introduce a need to work with North Dakota as systems are updated and migrated to ensure continued data transfer for NIPSRD. The system update should be monitored for potential changes to data model and impact to data integrity. |

## Appendix 11 Rhode Island Division of Public Utilities & Carriers Evaluation

State Program Manager: Don A. Ledversis, Position: Program Manager - Gas Safety Engineer
Department: Rhode Island Division of Public Utilities & Carriers
Number of Regulated Intrastate Pipeline Systems: 1
Gas Transmission Operators (Intrastate): 1
LNG Operators (Intrastate): 1

### KEY DATA ELEMENT COLLECTION

Of the key data element sets required to create data commonality across the State regulatory agencies for the purposes of NIPSRD, the Rhode Island Division of Public Utilities & Carriers was found to collect approximately 68 percent of those data elements:

| CATEGORY | KEY DATA ELEMENT | DATA COLLECTED |
|---|---|---|
| INSPECTION DATA ELEMENTS | OPERATOR IDENTIFIER (ID) | 🔴 |
| | OPERATOR NAME | 🟢 |
| | UNIT IDENTIFIER (ID) | 🔴 |
| | UNIT NAME | 🟢 |
| | SYSTEM TYPE | 🟢 |
| | UNIQUE IDENTIFIER (ID) | 🔴 |
| | INSPECTION TYPE | 🟢 |
| | START DATE | 🟢 |
| | END DATE | 🟢 |
| | AWAY FROM OFFICE (AFO) PERSON DAYS | 🔴 |
| | OFFICE PERSON DAYS | 🔴 |
| | REGULATION(S) CITED | 🟢 |

| | | |
|---|---|---|
| | **OPERATOR IDENTIFIER (ID)** |  |
| **ENFORCEMENT DATA ELEMENTS** | OPERATOR NAME |  |
| | UNIQUE IDENTIFIER (ID) |  |
| | ENFORCEMENT LETTER TYPE |  |
| | DATE OPENED |  |
| | DATE CLOSED |  |
| | CIVIL PENALTY ASSESSED |  |

## DATA CHALLENGES DISCOVERED

| DATA CHALLENGE | DETAILS |
|---|---|
| **MISSING RECORDS LINKAGE** | The absence of a formal method to create the record linkage between an Inspection record and an Enforcement record presents a challenge. This needs to be addressed in order to form a complete record. |

## POTENTIAL OPERATIONAL CHALLENGES (DATA)

None discovered.

## TECHNICAL OVERVIEW

The Rhode Island Division of Public Utilities & Carriers (DPUC) utilizes both handwritten and typed documentation to manage their inspection and enforcement data. These files are archived physically and augmented by digital spreadsheet files to track high-level information.

## INSPECTION DATA ENTRY AND STORAGE

**RHODE ISLAND DIVISION OF PUBLIC UTILITIES & CARRIERS – INSPECTION DATA**

| CATEGORY | Item | Description |
|---|---|---|
| **DATA ENTRY** | Handwritten Documents | All inspection details are collected on paper forms. |
| | Spreadsheet Software | High-level inspection data is entered directly into Excel |
| **STORAGE** | Unstructured Files | The paper inspection forms are not scanned or otherwise stored electronically. |
| | Structured Digital Files | A master tracking spreadsheet is built in Excel with very high-level information, and only contains a fraction of the information PHMSA is looking to track. |

## ENFORCEMENT DATA ENTRY AND STORAGE

**RHODE ISLAND DIVISION OF PUBLIC UTILITIES & CARRIERS – ENFORCEMENT DATA**

| CATEGORY | Item | Description |
|---|---|---|
| **DATA ENTRY** | Digital Documents | Enforcement letters are created directly in Word as needed |
| **STORAGE** | Unstructured Files | Enforcement letters are printed and filed in the physical file cabinet with the relevant inspection. |
| | Structured Files | Tracking of the status of enforcement letters is done on a paper log. There is a master spreadsheet for damage prevention and self-reporting. |

## POTENTIAL OPERATIONAL CHALLENGES (TECHNICAL)

| POTENTIAL CHALLENGE | DETAILS |
|---|---|
| **LIMITED RESOURCES** | Rhode Island DPUC maintains a small workforce (currently one resource) for pipeline inspections and enforcements. This could make implementation of NIPSRD integration difficult if the proposed system increases the workload or requires system buildout on behalf of Rhode Island's staff. |

## Appendix 12 Virginia State Corporation Commission Evaluation

State Program Manager: Massoud Tahamtani, Position: Director, Division of Utility and Railroad Safety
Department: Virginia State Corporation Commission
Number of Regulated Intrastate Pipeline Systems: 14

### KEY DATA ELEMENT COLLECTION

Of the key data element sets required to create data commonality across the State regulatory agencies for the purposes of NIPSRD, the Virginia State Corporation Commission was found to collect approximately 89 percent of those data elements:

| CATEGORY | KEY DATA ELEMENT | DATA COLLECTED |
|---|---|---|
| INSPECTION DATA ELEMENTS | OPERATOR IDENTIFIER (ID) | 🟢 |
| | OPERATOR NAME | 🟢 |
| | UNIT IDENTIFIER (ID) | 🟢 |
| | UNIT NAME | 🟢 |
| | SYSTEM TYPE | 🟢 |
| | UNIQUE IDENTIFIER (ID) | 🟢 |
| | INSPECTION TYPE | 🟢 |
| | START DATE | 🟢 |
| | END DATE | 🟢 |
| | AWAY FROM OFFICE (AFO) PERSON DAYS | 🔴 |
| | OFFICE PERSON DAYS | 🔴 |
| | REGULATION(S) CITED | 🟢 |

| ENFORCEMENT DATA ELEMENTS | |
|---|---|
| | **OPERATOR IDENTIFIER (ID)** |
| | OPERATOR NAME |
| | UNIQUE IDENTIFIER (ID) |
| | ENFORCEMENT LETTER TYPE |
| | DATE OPENED |
| | DATE CLOSED |
| | CIVIL PENALTY ASSESSED |

## DATA CHALLENGES DISCOVERED

None discovered.

## POTENTIAL OPERATIONAL CHALLENGES (DATA)

None discovered.

## TECHNICAL OVERVIEW

The Virginia State Corporation Commission currently maintains a custom-built Visual Basic application with a SQL database backend for managing their inspection and enforcement information.

## INSPECTION DATA ENTRY AND STORAGE

**VIRGINIA STATE CORPORATION COMMISSION - INSPECTION DATA**

| CATEGORY | Item | Description |
|---|---|---|
| **DATA ENTRY** | Custom-Built Application | Inspection data is entered directly into a Visual Basic application interface after returning from fieldwork. |
| | Database Storage | Inspection data resides in a SQL Server database |

## ENFORCEMENT DATA ENTRY AND STORAGE

**VIRGINIA STATE CORPORATION COMMISSION – ENFORCEMENT DATA**

| CATEGORY | Item | Description |
|---|---|---|
| **DATA ENTRY** | Custom-Built Application | Enforcement data is entered directly into the same central Visual Basic application as inspection data. |
| **STORAGE** | Database Storage | Enforcement data is co-located in the same SQL Server database |
| | Unstructured Files | Enforcement letters are also auto-generated by the application and stored digitally. |

## POTENTIAL OPERATIONAL CHALLENGES (TECHNICAL)

| POTENTIAL CHALLENGE | DETAILS |
|---|---|
| **LIMITED RESOURCES** | Although this state regulatory agency has a dedicated IT department, they indicated they were fully tasked. This potential challenge should be considered as relates to technical approach for NIPSRD implementation. |

(d) PUBLICATION.—The Secretary shall publish the recommendations provided under subsection (c) on a publicly available Web site of the Department of Transportation.

**SEC. 11. NATIONWIDE INTEGRATED PIPELINE SAFETY REGULATORY DATABASE.**

(a) REPORT.—Not later than 1 year after the date of enactment of this Act, the Secretary of Transportation shall submit to the Committee on Transportation and Infrastructure and the Committee on Energy and Commerce of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report on the feasibility of establishing a national integrated pipeline safety regulatory inspection database to improve communication and collaboration between the Pipeline and Hazardous Materials Safety Administration and State pipeline regulators.

(b) CONTENTS.—The report submitted under subsection (a) shall include—

(1) a description of any efforts underway to test a secure information-sharing system for the purpose described in subsection (a);

(2) a description of any progress in establishing common standards for maintaining, collecting, and

presenting pipeline safety regulatory inspection data, and a methodology for sharing the data;

(3) a description of any inadequacies or gaps in State and Federal inspection, enforcement, geospatial, or other pipeline safety regulatory inspection data;

(4) a description of the potential safety benefits of a national integrated pipeline safety regulatory inspection database; and

(5) recommendations, including those of stakeholders for how to implement a secure information-sharing system that protects proprietary and security sensitive information and data for the purpose described in subsection (a).

(c) CONSULTATION.—In implementing this section, the Secretary shall consult with stakeholders, including each State authority operating under a certification to regulate intrastate pipelines under section 60105 of title 49, United States Code.

(d) ESTABLISHMENT OF DATABASE.—The Secretary may establish, if appropriate, a national integrated pipeline safety regulatory database—

(1) after submission of the report required under subsection (a); or

(2) upon notification to the Committee on Transportation and Infrastructure and the Committee on Energy and Commerce of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate of the need to establish such database prior to the submission of the report under subsection (a).

**SEC. 12. UNDERGROUND GAS STORAGE FACILITIES.**

(a) DEFINED TERM.—Section 60101(a) of title 49, United States Code, is amended—

(1) in paragraph (21)(B) by striking the period at the end and inserting a semicolon;

(2) in paragraph (22)(B)(iii) by striking the period at the end and inserting a semicolon;

(3) in paragraph (24) by striking "and" at the end;

(4) in paragraph (25) by striking the period at the end and inserting "; and"; and

(5) by adding at the end the following:

"(26) 'underground natural gas storage facility' means a gas pipeline facility that stores natural gas in an underground facility, including—

"(A) a depleted hydrocarbon reservoir;

"(B) an aquifer reservoir; or